New Frontiers 2009 AO Pre-Proposal Conference

Archiving Requirements and PDS Support

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Topics to be Discussed

Your goal
My goal
Who am I
AO requirements
Archiving factors to consider
PDS support
Your Responsibility

Your Goal

Your goal is to present a plan that will convince reviewers that the instruments and mission scenario that you have selected will supply data that will adequately support your science goals and that you have estimated the costs and sized the mission appropriately.

My Goal

My goal is to provide the support you need to use the PDS effectively to produce a proposal that is fully conformant with the AO requirements that includes a data plan that will receive favorable review and will result in a mission, if selected, that will generate a high-quality dataset that will be available to the science community for years to come.

Who Am I?

PDS Chief Scientist

Manager of the Atmospheric Discipline Node

Managed R&A Programs at Headquarters 1997-1999

Have served on either the science panel or TMC for almost all the previous PI-led Mission Opportunities

Work on archiving inside the Cassini mission

AO Requirements
The First Hurdle– Compliance Checklist

Appendix F contains a checklist with the list of items that NASA will check for compliance before releasing a proposal for evaluation.

Scientific

12. Addresses solicited science research programs - Requirement 1

13. Requirements traceable from science to instruments to mission - Requirement 4

14. Appropriate data archiving plan - Requirement 5

15. Baseline science mission and threshold science mission defined - Requirement 8

AO Requirements
Section 4.4.3 - Data Policies

Mission data will be made fully available to the public through the Planetary Data System, in usable form, in the minimum time necessary, but barring exceptional circumstances within six months following its collection. The PI will be responsible for collecting the scientific, engineering, and ancillary information necessary to validate and calibrate the data prior to delivery to the archive.

AO Requirements

Section 4.4.3 - Data Policies (cont.)

Archival data products will include low-level (raw) data, high-level (processed) data, and derived data products such as maps, ancillary data, calibration data (ground and in flight), documentation, and related software and/or other tools necessary to interpret the data. **The PI will be responsible for generating data products that are documented, validated, and calibrated in physical units that are usable by the scientific community at large.**

AO Requirements
Calibration in Physical Units

- Many instrument team leaders feel that raw data and calibration software should be allowed in lieu of reduced data.

- Arguments against this include:

    - Team software is developed on a single platform

    - Team software frequently contains old subsections

    - By the end of the mission the software is even older

    - There are multiple instruments on many missions that have archived and are currently archiving in the PDS, making software maintenance impossible.

AO Requirements
Current PDS Ingestion Statistics

Mission	# of Ingested Instruments in 2009	Estimated # of Instruments to be ingested for the rest of 2009
Cassini	15	0
DAWN	0	4
MESSENGER	10	0
New Horizons	2	6
Rosetta	2	19
Hayabusa	1	6
EPOXI	3	1
Megellan	1	0
Deep Impact	3	0
Stardust	1	0
LRO	0	7
LCROSS	9	0
MER	9	0
Mars Express	6	0
Mars Odyssey	4	0
MRO	8	0
Phoenix	8	0
Total	**82**	**43**

AO Requirements

Section 4.4.3 - Data Policies (cont.)

NASA data archives have budgets to support core activities, including the basic ingestion and review of new data. Proposed mission data archiving plans and budgets must be consistent with the policies and practices of the appropriate NASA data archive.

AO Requirements
Scientific Implementation Merit and Feasibility of the Investigation

Factor B-3. **Merit of the data analysis plan.** This factor includes the merit of plans for data analysis and data archiving to meet the goals and objectives, to result in the publication of science discoveries in the professional literature, and to leave a data archive of value to the science community. Considerations in this factor include an assessment of planning and budget adequacy and evidence of plans for well-documented, high-level products and software usable to the entire science community, consideration of adequate resources for physical interpretation of data and reporting scientific results in refereed journals, and assessment of the proposed plan for the timely release of the data to the public domain for enlarging its science impact. (Section 7.2.3 Page 52)

Archiving Factors to Consider

- The PI is responsible for data management and archiving but responsibilities may be distributed and managed by a data manager who is familiar with PDS requirements.

- Data pipelines should be designed to be PDS conformant and team scientists should use the products that will be archived.

- PDS tools (i.e. label maker and data validator) can be integrated into the pipeline.

- Data management plans should be developed early in the mission working in close conjunction with the lead PDS node.

- End-to-end testing of the data pipeline and data products should occur during cruise or earlier.

- Plans for updating calibration and generating new archive versions should be integrated into the plan.

- Delivery schedules should include consideration of data types.

PDS Support

- The main PDS web page http://pds.nasa.gov/ has a direct link for Mission Proposers.

- The Mission Proposers page offers suggestions for establishing contact with the appropriate node and directs you to a complete listing of node managers who can advise you.

- It also sends you to further Information for Proposers that provides access to

  - The Proposers Archiving Guide

  - A Cost Analysis Tool and Model

- If this falls short of your needs contact me at 575-646-1938 or rbeebe@nmsu.edu.

Your Responsibility

Please send me email citing deficiencies in PDS support, documentation or tools.

As long as you do not CC: Jim Green or Barack Obama, feel free to express your self. The only 4-letter word that I find REALLY offensive is ITAR.